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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,219	06/19/2001	Kars-Michiel Hubert Lenssen	NL 000361	3007

7590 10/10/2002

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EXAMINER

STRECKER, GERARD R

ART UNIT PAPER NUMBER

2862

DATE MAILED: 10/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,219

Applicant(s)

Lemssen et al

Examiner

G. R. STRECKER

Group Art Unit

2862

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 9/17/02
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-10 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-10 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 9
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Revision, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gill (6,219,209) in view of Lederman et al (6,424,507, newly cited) and Tokunaga et al (6,452,382, newly cited).

As stated in the previous Office action, Gill discloses (Fig. 7) a magneto-resistive device comprising: a substrate (725) which carries a free (718) and a pinned (720) ferromagnetic layer, said pinned layer comprising a layer system (720) including a stack of three (750, 754, 758) ferromagnetic layers and two (752, 756) intermediate non-magnetic layers. The layer 750 is formed of Co, and layers 754 and 758 may be formed of CoFe (column 7, lines 19-33). It would be implicit to form all three layers of CoFe as recited in claim 2. The free and pinned layers are separated by a copper spacer (column 7, lines 34-36) as called for in claim 3. The intermediate layers 752 and 756 are formed of RU (column 7, lines 21-25) as called for in claim 4. An exchange biasing layer (AFM layer 724) is arranged between the substrate 725 and the layer system 720. Since the thickness of the ferromagnetic layers may be within a range (column 7, lines 19-33), selection of different thickness for the individual-layers (claims 7 and 8 would also be implicit. Magneto-resistive devices of the type disclosed by Gill are conventionally manufactured for use in data storage systems (claim 9) and as magnetic memories (claim 10).

Gill's exchange biasing layer 724 is formed of NiO whereas claim 1, as amended, recites that the claimed exchange biasing layer is made of IrMn type material which Applicant maintains increases the blocking temperature as compared to materials such as NiO.

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Lederman discloses a multilayer magnetoresistive device (Fig. 2 e.g.) which includes an AFM layer 116. The layer 116 is made of IrMn which has a high blocking temperature as noted at column 3, lines 41, 42.

Tokunaga et al discloses an encoder provided with multilayer magnetoresistance elements which include exchange biasing layers. At column 7, lines 30-47 a specific multilayer structure is discussed. At lines 41-47 it is stated that the exchange bias layer can be formed of any one of numerous well-known materials, including NiO and IrMn.

It would have been obvious to one skilled in the art to substitute IrMn for NiO as the exchange bias layer in the magneto-resistive device of Gill, to increase the blocking temperature or merely as the routine implementation of a known alternative option, as suggested by the combined teachings of Lederman et al and Tokunaga et al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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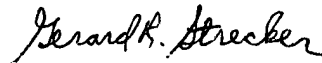
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will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to G. R. Strecker at telephone number (703) 305-4937.

G.R. Strecker/mm

10/09/02


GERARD R. STRECKER
PRIMARY EXAMINER